Maryland Department of the Environment
1999 End Of Season Ozone Report

Ozone Action Days

Forecasting Program

Ozone Pollution Map

Air Quality Monitoring

Community Outreach

October 1999

Ground-Level Ozone Remains Maryland's Worst Air Problem

Ground-level ozone is the region's worst summertime air pollution problem. Ground-level ozone is created when a mixture of air pollutants from a variety of sources--such as the fumes from our vehicles, lawnmowers, and boats, or emissions from power plants and industrial facilities -- react in sunlight. The main ozone-causing pollutants are volatile organic compounds (VOCs) and nitrogen oxides (NOx). Because heat and sunlight are also important factors in ground-level ozone formation, ozone pollution is primarily a concern from April through October. Motor vehicles account for about 30-40% of the ozone-causing pollutants in the Baltimore and Washington areas.

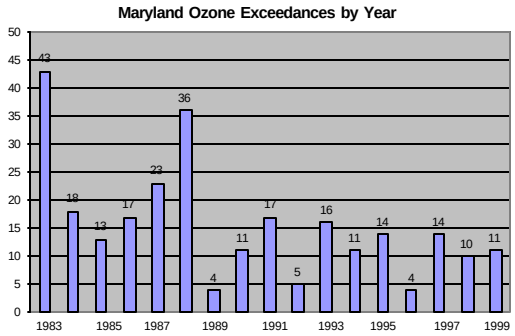
New Ozone Action Days Material!

Tired of the same old outreach material? Then give your Clean Air Outreach Coordinator a call at (410) 333-1750 ext. 214 in the Baltimore area or 1-800-745-7433 in the Washington, D.C. area to receive the latest ozone informational brochures!

1999 Weather Summary

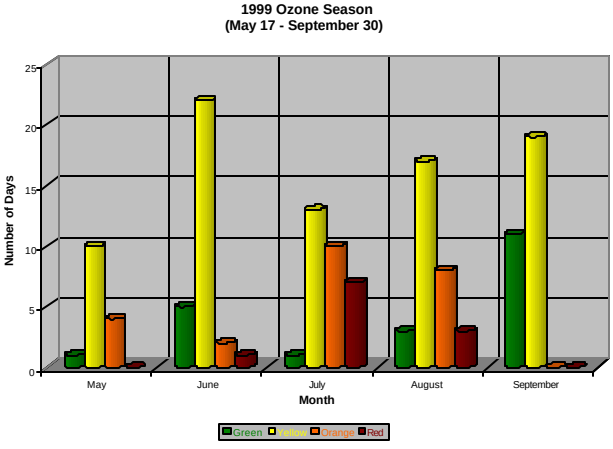
The summer of 1999 was one of extremes when it came to precipitation. The months of May, June, and July all had below normal rainfall. To make matters worse, by the end of July there were only two months in the past 16 months in which precipitation was above normal. The turning point for rainfall was the end of August. More specifically, on August 26 a slow moving thunderstorm dropped from 4 to 8 inches of rain on the Baltimore metro area. This heavy rainfall, over a three-hour period, transformed parking lots and streets into lakes and rivers. Even in the year of the drought, August of 1999 will be ranked in the weather archives as the second wettest August of the 1990's.

The month of September saw the above normal precipitation trend continue for Maryland. Within a two-week time period Maryland was hit with not one but two tropical weather systems. The first was hurricane Dennis, which helped soak the area, but had lost most of its punch when it came to wind. Then came hurricane Floyd, which not only flooded the area but packed strong enough winds to snap trees and take down power lines, which resulted in some folks being in the dark for days. The above normal precipitation helped alleviate Maryland's drought, which had plagued the area for most of the summer.



1999 Ozone Summary

So how bad was the ozone this summer? The 1999 ozone season, as a whole, was considered about average. There were 11 code red days, 24 code orange days, 81 code yellow days, and 21 code green days. Maryland shared the dubious "honor" of having the most ozone exceedances in the Northeast with Connecticut, Pennsylvania, and New York.



Ozone, measured hourly, exceeds the federal health standard when values exceed 125 parts per billion (ppb). These exceedances are referred to as **Code Red** conditions. The term **Code Red** is used to

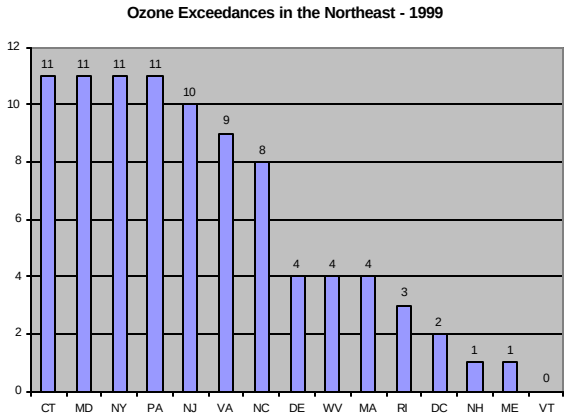
alert the general public that the air quality is considered unhealthy. Three ozone exceedances in a three-year period are the federal limits for acceptable air quality. Eleven times during the summer of 1999 Maryland experienced ozone levels above the federal standard.

New Federal Ozone Standard

The U.S. EPA has issued a new, stricter air quality standard for ground-level ozone. The new standard lowers acceptable ozone concentrations from 125 ppb averaged over one hour to 85 ppb averaged over eight hours. The EPA lowered the acceptable ozone standard to address recent scientific evidence that cumulative lung damage can be the result of prolonged exposure to ozone air pollution. By averaging ozone levels over an eight-hour period, the revised standard will provide a higher level of protection, especially for people who spend a significant amount of time outdoors.

Ozone -- A Regional Problem

One of the most hotly contested topics of recent years has been whether ozone is transported into the Maryland region. Recent findings have shown that high levels of ozone have been monitored in areas such as the very rural Shenandoah Valley and other points west of the metropolitan region. This lends support to the argument that ozone transport is a real issue that needs to be addressed to solve Maryland's ozone problem. It has become apparent that, to improve Maryland's air quality, federal control programs need to be developed to reduce ozone-forming smog pollutants that are emitted outside of Maryland.



Ozone Action Days Helps to Keep the Air Clean

Maryland turns towards its citizens, businesses and government agencies to make a difference in our summertime ground-level ozone problem. In its third year, the Ozone Action Days program has grown to over 300 partners in the Baltimore / Washington, D.C. metropolitan region. Upon receiving notification of a forecasted Ozone Action Day, partners have taken a concerted effort to reduce activities that would lead to the formation of ground-level ozone. Many partners have even increased their efforts by curbing polluting activities during forecasted Code Orange days as well.

The Ozone Action Days program is part of a broader effort called ENDZONE -- Partners to End Ground-Level Ozone. The purpose of the Ozone Action Days program is to advocate and facilitate air pollution prevention on days when meteorologists predict that weather is conducive to the formation of ground-level ozone.

Clean Air Highlights

ENDZONE Partners kicked off the ozone season in May with the 1st annual Ozone Action Days Conference and Exposition in Laurel, MD. The seminar provided prospective, as well as active, Ozone Action Days and ENDZONE partners with many informative breakout sessions that included discussions from Ozone Action Day coordinators who are responsible for putting together successful programs for their organizations.

Spreading the Word

More than 500 businesses, government agencies, health organizations and citizens receive notification of Code Red forecasts. If you would like to receive fax or email notification on Ozone Action Days during the ozone season, call (410) 631-3240.

The Maryland State Fair proved to be an excellent opportunity to spread the word to people this ozone season. An information booth, manned by volunteers from MDE, handed out Ozone Action Days materials and answered many questions about the program.

New Ozone Action Days brochures were produced this season for ENDZONE Partners with much support from Baltimore Gas & Electric and others. Over 30,000 pieces were distributed to Partners and citizens during the ozone season. Extraordinary efforts were made by organizations like Baltimore County Government, Aberdeen Proving Grounds and the Social Security Administration who went beyond the call of duty in order to provide employees with information and curb activities that caused pollution.

What's on the Hori"Zone"

Next season looks to be an exciting time for the Ozone Action Days program. In addition to fax notification of the daily air quality forecast, MDE is looking into e-mail and pager notification to businesses and individuals. These methods will better ensure that Ozone Action Days coordinators will receive **Code Red** notifications in a timely fashion.

Air Quality Monitoring in Maryland

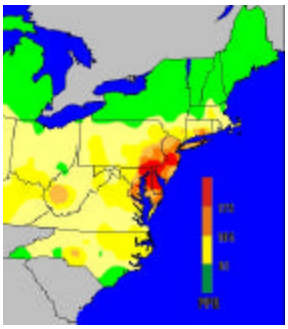
The Maryland Department of the Environment (MDE) is responsible for maintaining and operating a statewide air monitoring network that measures the six criteria pollutants. The federal government have established criteria for particulate matter (PM_{10}, $PM_{2.5}$), carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), lead (Pb) and ozone (O_3). Of these pollutants, only ozone has been above the federal standards in Maryland. The State has just begun to establish a monitoring network and collect data for $PM_{2.5}$. It remains to be seen as to whether Maryland will meet federal $PM_{2.5}$ standards.

Ground-level ozone is monitored at 17 locations throughout the state. These monitors are strategically placed to show ozone concentrations near urban centers, rural areas and to demonstrate both local and regional transport. MDE has been monitoring air pollution in Maryland for nearly thirty years and has been forecasting ozone since 1993.

Maryland's Ozone Monitoring Network

Ozone Pollution Mapping Goes Nationwide

The Ozone Pollution Map was originally developed by MDE and the American Lung Association of Maryland to broaden public awareness about ground-level ozone in the Baltimore / Washington, D.C. metropolitan area. The Ozone Map was the first of its kind to display formation and transport of air pollution. During the summer of 1995, residents of the Baltimore / Washington, D.C. metropolitan area were the first in the country to see ground-level ozone air pollution displayed on an animated map as a regular feature of their television weather reports.



The Ozone Pollution Map animates real-time air monitoring data to show the formation, movement and dissipation of ozone throughout the course of the day. The Map provides the public with timely, detailed information regarding ozone air pollution levels in their community and throughout the region. This allows the public an opportunity to alter their activities during periods of high ozone levels, thus limiting their exposure to unhealthy air.

During the summer of 1997, the Environmental Protection Agency (EPA) developed and launched a new Ozone Mapping System for the Mid-Atlantic and Northeast parts of the country. This new

system polled or received data from 22 states and over 200 air monitors. By 1999, the Ozone Mapping System grew to 32 states providing data from over 1400 air monitors across the country. Additional states are working with the EPA, and will be online for the next ozone season. To learn more about the Ozone Mapping System, visit the EPA online at http://www.epa.gov/airnow/.